This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended):   A method for ~~determining a gesture~~ automatically controlling a device comprising the steps of:
determining a change in a background of an image from a plurality of images;
determining an object in the image~~, said determining step further comprising the steps of:~~
~~obtaining a normalized color representation for a plurality of colors in each image;~~
~~determining from training images an estimate of a probability distribution of normalized color values for an object class; and~~
~~determining, for each pixel, a likelihood according to an estimated probability density of normalized color values for the object class;~~
identifying a gesture according to the trajectory of the object;
determining if the gesture corresponds to a valid command; and
if the gesture corresponds to a valid command, executing the command.
~~determining a trajectory of the object through the plurality of images; and~~
~~classifying a gesture according to the trajectory of the object.~~

Claim 2 (Original):   The method of claim 1, wherein the step of determining the change in the background further comprises the steps of:
determining a gradient intensity map for the background from a plurality of images;
determining a gradient intensity map for the current image;
determining, for a plurality of pixels, a difference between the gradient intensity map and the gradient intensity map for the background;
determining a comparison between the difference and a threshold; and
determining a pixel to be a background pixel according to the comparison.

Claim 3 (Original):   The method of claim 1, wherein the object includes a user's hand.

Claim 4 (Canceled).

Claim 5 (Canceled).

Claim 6 (Canceled).

Claim 7 (Canceled).

Claim 8 (Currently Amended):   The method of claim 1, wherein the step of
~~classifying~~ <u>translating</u> the gesture further comprises the steps of:
        determining a reference point;
        determining a correspondence between the trajectory and the reference
point; and
        ~~classifying~~ <u>translating</u> the trajectory according to one of a plurality of
commands.

Claim 9 (Currently Amended):   A method for determining a trajectory of a hand
through a plurality of images comprising the steps of:
        detecting a reference point;
        updating the reference point as the reference point is varied;
        detecting a first translation of the hand through the plurality of images;
        detecting a second translation through the plurality of images <u>such that a
normalized vector is determined between two centroids c_i and c_{i-1} as a feature
vector such that there is a vertical movement output pattern, a horizontal output
pattern and an unknown output pattern</u> ;
        <u>comparing the reference point to a centroid upon determining the
translation to be a vertical or a horizontal translation;</u>
        <u>testing an input pattern upon determining the translation to be an unknown
translation;</u>
        determining a gesture according to a vote; and
        determining whether the gesture is a valid gesture command.

Claim 10 (Original): The method of claim 9, wherein the reference point is not
interpreted as a gesture command.

Claim 11 (Original): The method of claim 9, wherein the reference point is
characterized by hand size and a location of a centroid of the hand in each
image.

Claim 12 (Original): The method of claim 9, wherein the first translation is one of
a forward and a backward translation, wherein the first translation is
characterized by a large change in hand size and a relatively small change in a
centroid of the hand.

Claim 13 (Original): The method of claim 9, wherein the second translation is one
of a left, a right, an up and a down translation.

Claim 14 (Canceled).

Claim 15 (Canceled).

Claim 16 (Currently Amended): The method of claim ~~15~~ 9, wherein the step of testing an input pattern further comprises the steps of detecting a circular movement, wherein an angle between vector $c_t c_{t-1}$ and vector $c_{t-1} c_{t-2}$ is determined as the feature vector.

Claim 17 (Original): The method of claim 9, wherein the valid gesture is performed continually for a predetermined time.

Claim 18 (Currently Amended): A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for ~~determining a gesture~~ automatically controlling a device, the method steps comprising:

determining a change in a background of an image from a plurality of images;

determining an object in the image ~~said determining step further comprising the steps of:~~

~~obtaining a normalized color representation for a plurality of colors in each image;~~

~~determining from training images an estimate of a probability distribution of normalized color values for an object class; and~~

~~determining, for each pixel, a likelihood according to an estimated probability density of normalized color values for the object class;~~

~~determining a trajectory of the object through the plurality of images; and~~

~~classifying a gesture according to the trajectory of the object.~~

identifying a gesture according to the trajectory of the object;

determining if the gesture corresponds to a valid command; and

if the gesture corresponds to a valid command, executing the command.

Claim 19 (Original): The method of claim 18, wherein the step of determining the change in the background further comprises the steps of:

determining a gradient intensity map for the background from a plurality of images;

determining a gradient intensity map for the current image;

determining, for a plurality of pixels, a difference between the gradient intensity map and the gradient intensity map for the background;

determining a comparison between the difference and a threshold; and

determining a pixel to be a background pixel according to the comparison.

Claim 20 (Original): The method of claim 18, wherein the object includes a user's hand.

Claim 21 (Cancelled).

Claim 22 (Canceled).

Claim 23 (Canceled).

Claim 24 (Canceled).

Claim 25 (Currently Amended):   The method of claim 18, wherein the step of classifying translating the gesture further comprises the steps of:
        determining a reference point;
        determining a correspondence between the trajectory and the reference point; and
        classifying translating the trajectory according to one of a plurality of commands.

Claim 26 (New):   The method of claim 1 wherein the step of determining an object in the image further comprising the steps of:
        obtaining a normalized color representation for a plurality of colors in each image;
        determining from training images an estimate of a probability distribution of normalized color values for an object class; and
        determining, for each pixel, a likelihood according to an estimated probability density of normalized color values for the object class.
        :

Claim 27 (New): The method of claim 1 wherein the step of executing the command further comprises the steps of:
        determining the duration of the gesture; and
        correlating the duration of the gesture to a intensity and scale in which the command is executed.

Claim 28 (New): The method of claim 1 wherein the device is a virtual endoscope.

Claim 29 (New): The method of claim 28 wherein the command corresponds to rotation of the virtual endoscope.

Claim 30 (New): The method of claim 29 wherein the gesture is rotation of a user's hand.

Claim 31 (New): The method of claim 28 wherein the command corresponds to moving the virtual endoscope in a right to left direction.

Claim 32 (New): The method of claim 31 wherein the gesture is waving of a user's hand from right to left.

Claim 33 (New): The method of claim 27 wherein repetition of a command increases the intensity of the corresponding command response.

Claim 34 (New): The method of claim 1, wherein the step of determining the object in the image further comprises the steps of:

obtaining a normalized color representation for a plurality of colors in each image;

determining from training images an estimate of a probability distribution of normalized color values for an object class; and

determining, for each pixel, a likelihood according to an estimated probability density of normalized color values for the object class.

Claim 35 (New): The method of claim 1, wherein the step of determining the trajectory of the object through the plurality of images further comprises the steps of:

determining, for each pixel, a temporal likelihood across a plurality of images; and

determining a plurality of moments according to the temporal likelihoods.

Claim 36 (New): The method of claim 1 wherein the identified gesture is a valid command if it detects object pixels moving in a predefined pattern.